

16 inches, and Schedule 40 for nominal pipe sizes 16 inches and above.

(f) Valves required by this section and piping system components outboard of such required valves on new vessel installations or replacements in vessels of 150 gross tons and over shall be of a steel, bronze, or ductile cast iron specification listed in Table 56.60-1(a). Lead or other heat sensitive materials having a melting point of 1,700 °F. or less shall not be used in such service, or in any other application where the deterioration of the piping system in the event of fire would give rise to danger of flooding. Brittle materials such as cast iron shall not be used in such service. Where nonmetallic materials are used in a piping system, and shell closures are required by this section, a positive closure metallic valve is required (see also § 56.60-25).

(g) The inboard openings of ash and rubbish-chute discharges shall be fitted with efficient covers. If the inboard opening is located below the freeboard deck, the cover shall be watertight, and in addition, an automatic non-return valve shall be fitted in the chute in any easily accessible position above the deepest load line. Means shall be provided for securing both the cover and the valve when the chute is not in use. When ash-ejectors or similar expelling devices located in the boiler-room have the inboard openings below the deepest load line, they shall be fitted with efficient means for preventing the accidental admission of water. The thickness of pipe for ash ejector discharge shall be not less than Schedule 80.

(h) Where deck drains, soil lines, and sanitary drains discharge through the shell in way of cargo tanks on tank vessels, the valves required by this section shall be located outside the cargo tanks. These valves shall meet the material requirements of paragraph (f) of this section. The piping led through such tanks shall be fitted with expansion bends where required, and shall be of steel pipe having a wall thickness of not less than five-eighths inch, except that the use of suitable corrosion-resistant material of lesser thickness will be given special consideration by the Commandant. All pipe joints within the tanks shall be welded. Soil lines

and sanitary drains which pass through cargo tanks shall be provided with non-return valves with positive means of closing or other suitable means for preventing the entrance of gases into living quarters.

(i) Except as provided for in § 58.20-20(c) of this chapter, sea valves must not be held open with locks. Where it is necessary to hold a discharge or intake closed with a lock, either a locking valve may be located inboard of the sea valve, or the design must be such that there is sufficient freedom of motion to fully close the locked sea valve after an event, such as fire damage to the seat, causes significant leakage through the valve. Valves which must be opened in and emergency, such as bilge discharges or fire pump suction, must not be locked closed, whether they are sea valves or not.

[CGFR 68-82, 33 FR 18843; Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9979, June 17, 1970; CGFR 72-59R, 37 FR 6189, Mar. 25, 1972; CGD 81-030, 53 FR 17837, May 18, 1988; CGD 77-140, 54 FR 40610, Oct. 2, 1989]

§ 56.50-96 Keel cooler installations.

(a) Keel cooler installations shall meet the requirements of § 56.50-95(d)(1) and (2), and (e)(3), and (f) except that shutoff or isolation valves will not be required for the inlet and discharge connections if:

(1) The installation is forward of the collision bulkhead; or,

(2) The installation is integral with the ship's hull such that the cooler tubes are welded directly to the hull of the vessel with the hull forming part of the tube and satisfies all of the following:

(i) The cooler structure is fabricated from material of the same thickness and quality as the hull plating to which it is attached except that in the case of half round pipe lesser thickness may be used if specifically approved by the Commandant. In any case the structure, with the exception of the hull proper, need not exceed three-eighths inch in thickness.

(ii) The flexible connections and all openings internal to the vessel, such as expansion tank vents and fills, in the installation are above the deepest load line and all piping components are

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Schedule 80 or thicker below the deepest load line.

(iii) Full penetration welds are employed in the fabrication of the structure and its attachment to the hull.

(iv) The forward end of the structure must be faired to the hull such that the horizontal length of the fairing is no less than four times the height of the structure, or be in a protected location such as inside a bow thruster trunk.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 72-59R, 37 FR 6189, Mar. 25, 1972; CGD 77-140, 54 FR 40611, Oct. 2, 1989]

§ 56.50-97 Piping for instruments, control, and sampling (modifies 122.3).

(a) Piping for instruments, control, and sampling must comply with paragraph 122.3 of ASME B31.1 (incorporated by reference; see 46 CFR 56.01-2) except that:

(1) Soldered type fittings may not be used.

(2) The outside diameter of takeoff connections may not be less than 0.840 inches for service conditions up to 900 psi or 800 °F., and 1.050 inches for conditions that exceed either of these limits.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9978, June 17, 1970; CGD 73-254, 40 FR 40165, Sept. 2, 1975; USCG-2003-16630, 73 FR 65178, Oct. 31, 2008]

§ 56.50-103 Fixed oxygen-acetylene distribution piping.

(a) This section applies to fixed piping installed for the distribution of oxygen and acetylene carried in cylinders as vessels stores.

(b) The distribution piping shall be of at least standard wall thickness and shall include a means, located as close to the supply cylinders as possible, of regulating the pressure from the supply cylinders to the suitable pressure at the outlet stations.

(c) Acetylene distribution piping and pipe fittings must be seamless steel. Copper alloys containing less than 65 percent copper may be used in connection with valves, regulators, gages, and other equipment used with acetylene.

(d) Oxygen distribution piping and pipe fittings must be seamless steel or copper.

(e) When more than two cylinders are connected to a manifold, the supply pipe between each cylinder and mani-

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fold shall be fitted with a non-return valve.

(f) Except for the cylinder manifolds, acetylene is not to be piped at a pressure in excess of 100 kPa (14.7 psi).

(g) Pipe joints on the low pressure side of the regulators shall be welded.

(h) Branch lines shall not run through unventilated spaces or accommodation spaces.

(i) Relief valves or rupture discs shall be installed as relief devices in the piping system if the maximum design pressure of the piping system can be exceeded. The relief device set pressure shall not exceed the maximum design pressure of the piping system. Relief devices shall discharge to a location in the weather at least 3 m (10 ft) from sources of ignition or openings to spaces or tanks.

(j) Outlet stations are to be provided with suitable protective devices which will prevent the back flow of gas into the supply lines and prevent the passage of flame into the supply lines.

(k) Shutoff valves shall be fitted at each outlet.

[CGD 95-028, 62 FR 51201, Sept. 30, 1997]

§ 56.50-105 Low-temperature piping.

(a) *Class I-L.* Piping systems designated to operate at temperatures below 0 °F. and pressures above 150 pounds per square inch gage shall be of Class I-L. Exceptions to this rule may be found in the individual requirements for specific commodities in subchapters D, I, and O of this chapter. The following requirements for Class I-L piping systems shall be satisfied:

(1) *Materials.* All materials used in low temperature piping systems shall be selected from among those specifications listed in Table 56.50-105 and shall satisfy all of the requirements of the specifications, except that:

(i) The minimum service temperature as defined in § 54.25-10(a)(2) of this subchapter shall not be colder than that shown in Table 56.50-105; and

(ii) The material shall be tested for low temperature toughness using the Charpy V-notch specimen of ASTM E 23 (incorporated by reference, see § 56.01-2), "Notched Bar Impact Testing of Metallic Materials", Type A, Figure 4. The toughness testing requirements of subpart 54.05 of this subchapter shall